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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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04/13/2004

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EXAMINER

JOHNSON, STEPHEN

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/027,727

Applicant(s)

HAN, CHENGHUA OLIVER

Examiner

Stephen M. Johnson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6,7,17-19,22,23,25,27,28,30 and 33-41 is/are pending in the application.
4a) Of the above claim(s) 36-41 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,3,6,7,17-19,22,23,25,27,28,30 and 33-35 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☒ Claim(s) See Continuation Sheet are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

Continuation of Disposition of Claims: Claims subject to restriction and/or election requirement are 1,3,6,7,17-19,22,23,25,27,28,30 and 33-41.

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1. Applicant's election without traverse of a system and associated method of use having at least one groove; a V-notch; an outside location; and an axially oriented groove in the Paper filed on 1/23/2004 is acknowledged.

Claims 1, 3, 6-7, 17-19, 22-23, 25, 27-28, 30, and 33-35 read on the elected invention and an action on these claims follows. Newly presented claims 36-41 are withdrawn from consideration as being directed to a non-elected invention. Note that applicant has constructively elected, by original presentation, the system and associated method of using claims 1, 3, 6-7, 17-19, 22-23, 25, 27-28, 30. Newly presented claims 36-41 are directed to a method of making a shaped charge, an invention not initially presented. (see MPEP 812.03 and 806.05(f)).

2. The substitute specification, filed on 1/23/2004, has been approved for entry.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 7, 17, 22-23, 25, 27-28, 30, 33, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Renfro et al..

Renfro et al. disclose a perforating system and associated method comprising:

- | | |
|--|----|
| a) a shaped charge with charge case; | 14 |
| b) an explosive material; | 28 |
| c) a plurality of slots about which the charge case fractures; | 16 |
| d) a liner; and | 50 |

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e) a perforating string having a plurality of shaped charges. col. 1, lines 8-12

Applicant's arguments are addressed as follows. It is argued that Renfro et al.

lacks a teaching directed a liner that is adapted to fracture about the troughs when an explosive detonates. In response, the examiner would like to direct applicant's attention to col. 3, lines 63-67; col. 4, lines 1-14; col. 5, lines 45-63; and col. 10, lines 50-57.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renfro et al. in view of Markel et al..

Renfro et al. apply as previously recited. However, undisclosed is a perforating string that is a loading tube and carrier; a spiral gun, or a strip gun. Markel et al. teach a perforating string that is a loading tube and carrier (figs. 6A and 6B); a spiral gun (figs. 5A or 5B); or a strip gun (figs. 2B or 4). Applicant is substituting a particular type of perforating string for a specific type of perforating string in an analogous art setting as explicitly encouraged by Markel et al.. Markel et al. encourages substituting one perforating string for another by giving numerous alternative examples of prior art perforating strings known in this art. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Markel et al. to the Renfro et al. perforating system and have a perforating system with an alternative perforating string.

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7. Claims 3, 6, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renfro et al. in view of German 1,234,584.

Renfro et al. apply as previously recited. However, undisclosed are slots that are axially oriented and v-notched. German 1,234,584 teaches slots that are axially oriented and v-notched, see figs. 1, 3, and 5. Applicant is substituting one slot arrangement for another, in an analogous art setting, each of which is located on a shaped charge casing and designed for fracturing. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of German 1,234,584 to the Renfro et al. perforating system and have a perforating system with differently shaped or arranged slots.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Renfro et al. in view of Chawla et al..

Renfro et al. apply as previously recited. However, undisclosed is slot that is v-shaped. Chawla et al. teach a slot that is v-shaped 46. Applicant is substituting one shaped slot for another, in an analogous art setting. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Chawla et al. to the Renfro et al. perforating system and have a perforating system with differently shaped slots.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chawla et al..

Chawla et al. disclose a perforating system and associated method comprising:

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- a) a shaped charge with charge case; 36
- b) an explosive material; 18
- c) a plurality of slots about which the charge case fractures; 46
- d) a liner; and 22
- e) a perforating string having a plurality of shaped charges. see fig. 5

Applicant's arguments are addressed as follows. It is argued that Chawla et al. lack "at least one slot about which the charge case fractures when an explosive detonates". This argument is convincing. However, these claim features are not present in the claims at issue (claims 17-18). With regard to the argument that the score marks are present during manufacturing. This is true. However, this does not preclude Chawla et al. from reading on claim 17 as claimed. Note that claim 17 is directed to a method of using. With regard to the argument that these score marks do not exist in the final product. This is not convincing. The liner material breaks upon lines 46 to form a clean break in liner 36 (see col. 3, lines 64-67). However, the grooves that contain lines 46 will still be present at the ends of the liner 36 after manufacturing.

11. Claims 1, 3, 6, 22-23, 25, 27-28, 30, and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by German 1,234,584.

German 1,234,584 discloses a perforating system and associated method comprising:

- a) a shaped charge with charge case; see fig. 1
- b) an explosive material; 2, 4
- c) a plurality of slots about which the charge case fractures; and 9, 10
- d) a liner. see figs. 3, 5

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12. Applicant's arguments filed on 1/23/2004 have been fully considered but they are not persuasive. These arguments have been addressed in the preceding paragraphs of this Office action.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

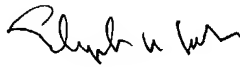
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Johnson whose telephone number is 703-306-4158. The examiner can normally be reached on Tuesday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

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The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326. The fax phone number for after final communications is (703) 872-9327.



STEPHEN M. JOHNSON
PRIMARY EXAMINER

Stephen M. Johnson
Primary Examiner
Art Unit 3641

SMJ